

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

These amendments introduce no new matter and support for the changes is replete throughout the specification, claims, and drawings as originally filed. All changes are made without prejudice and are not to be construed as abandonment of any previously claimed subject matter or agreement with any objection or rejection of record.

### Listing of Claims:

1. **(Currently Amended)** A method for identifying a compound that modulates taste signaling in taste cells, the method comprising ~~the steps of:~~

(i) contacting the compound with a eukaryotic host cell or cell membrane which expresses a taste cell-specific ion channel subunit:

(a) having greater than about 90% amino acid sequence identity to a polypeptide having a sequence selected from the group that consists of SEQ ID NO: 2, SEQ ID NO: 5, and SEQ ID NO: 8: and

(b) forming a functional ion channel; and

(ii) determining a functional effect of the compound upon the cell or cell membrane which expresses the taste cell-specific ion channel subunit, wherein the functional effect is under the influence of the taste cell-specific ion channel subunit, and wherein the functional effect comprises a change in intracellular ion concentration, a change in a transmembrane ion flux of an ion, or a change in intracellular  $\text{Ca}^{++}$  a transmembrane ion flux of a

~~predetermined ion~~, thereby identifying the ~~the~~ ~~[[a]]~~ compound that modulates taste signaling in taste cells.

2. **(Cancelled).**

3. **(Cancelled).**

4. (Currently Amended) The method of claim 1, wherein the change ~~changes~~ in functional effect-ion flux is ~~is~~ [[are]] measured by an assay selected from the group consisting of a voltage clamp assay, a patch clamp assay, a radiolabeled ion flux assay, and ~~[[or]]~~ a fluorescence assay using ion sensitive dyes.

5. (Original) The method of claim 1, wherein the cell or cell membrane is attached to a solid substrate.

6. (Original) The method of claim 1, wherein the taste cell-specific ion channel subunit is from a mammal.

7. (Original) The method of claim 6, wherein the taste cell-specific ion channel subunit has an amino acid sequence selected from the group that consists of SEQ ID NO: 2, SEQ ID NO: 5, and SEQ ID NO: 8.

8. (Original) The method of claim 1, wherein the host cell is a human cell.

9. (Original) The method of claim 1, wherein the host cell is a HEK 293 cell.

10-11. (Cancelled).

12. (Currently Amended) A method of modulating taste signaling in taste cells of an individual, the method comprising:

(a) identifying a compound that modulates taste signaling in taste cells; wherein identifying comprises contacting the compound with a eukaryotic host cell or cell membrane which expresses a taste cell-specific ion channel subunit; wherein the subunit comprises greater than about 90% amino acid sequence identity to a polypeptide having a sequence selected from the group consisting of SEQ ID NO: 2, 5, and 8; forming a functional ion channel; determining a functional effect of the compound upon the cell or cell membrane which expresses the taste cell-specific ion channel subunit, wherein the functional effect is

**under the influence of the taste cell-specific ion channel subunit; wherein the functional effect comprises a change in intracellular ion concentration, a change in a transmembrane ion flux of an ion, or a change in intracellular Ca<sup>++</sup>; thereby identifying the compound that modulates taste signaling in taste cells; and,**

**(b) administering to ~~the an~~ individual a pharmacologically effective amount of a composition comprising the compound, that modulates taste signaling by an ion channel subunit**

**(a) ~~having greater than about 90% amino acid sequence identity to a polypeptide having a sequence selected from the group that consists of SEQ ID NO: 2, SEQ ID NO: 5, and SEQ ID NO: 8; and~~**

**(b) forming a functional ion channel;**

thereby modulating taste signaling in taste cells of said individual.

13. (Cancelled).

14. (Original) A method of claim 12, wherein said individual is a mammal.

15. (Original) A method of claim 12, wherein said individual is a human.

16. (New) The method of claim 1, wherein the taste cell-specific ion channel subunit is a recombinant ion channel subunit.

17. (New) A method for identifying a compound that modulates taste signaling in taste cells, the method comprising:

(i) contacting the compound with a eukaryotic host cell or cell membrane which expresses a recombinant taste cell-specific ion channel subunit:

(a) having greater than about 90% amino acid sequence identity to a polypeptide having a sequence selected from the group that consists of SEQ ID NO: 2, SEQ ID NO: 5, and SEQ ID NO: 8; and

(b) forming a functional ion channel; and

(ii) determining a functional effect of the compound upon the cell or cell membrane which expresses the recombinant taste cell-specific ion channel subunit, wherein the functional effect is under the influence of the recombinant taste cell-specific ion channel subunit, and wherein the functional effect comprises a change in intracellular ion concentration, a change in a transmembrane ion flux of an ion, or a change in intracellular  $\text{Ca}^{++}$ , thereby identifying the compound that modulates taste signaling in taste cells.